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THE AGRICULTURAL COLLEGE

EXTENSION BULLETIN

Vol. IX APRIL, 1914 No. 8

Ten Common Household Insects

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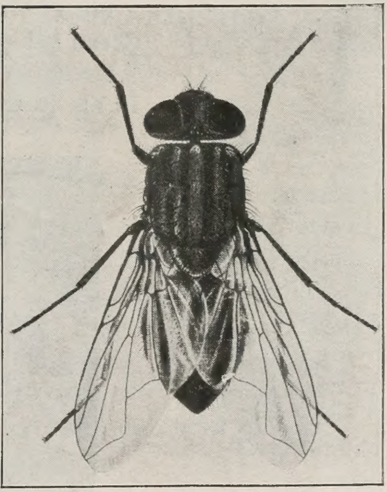

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PUBLISHED MONTHLY BY THE OHIO STATE UNIVERSITY
COLUMBUS

Entered as Second-Class Matter, November 17, 1905, at the Post Office at Columbus, Ohio, under Act of Congress, July 16, 1894

Jack in the Pulpit

Jack in the pulpit
  Preaches today,
Under the green trees
  Just over the way.
Squirrel and song-sparrow,
  High on their perch,
Hear the sweet lily bells
  Ringing to church.
Come, hear what his reverence
  Rises to say,
In his low painted pulpit
  This calm Sabbath-day.
Fair is the canopy
  Over him seen,
Penciled by Nature's hand,
  Black, brown, and green.
Green is his surplice,
  Green are his bands;
In his queer little pulpit
  The little priest stands.
In black and gold velvet,
  So gorgeous to see,
Comes with his bass voice
  The chorister bee.
Green fingers playing
  Unseen on wind-lyres,
Low singing bird voices,—
  These are his choirs.
The violets are deacons,
  I know by the sign
That the cups which they carry
  Are purple with wine.
And the columbines bravely
  As sentinels stand
On the look-out with all their
  Red trumpets in hand.
Meek-faced anemones,
  Drooping and sad;
Great yellow violets,

Smiling out glad;
Buttercups' faces,
Beaming and bright;
Clovers, with bonnets,—
Some red and some white;
Daisies, their white fingers
Half-clasped in prayer;
Dandelions, proud of
The gold in their hair;
Innocents, children
Guileless and frail,
Meek little faces
Upturned and pale;
Wild-wood geraniums,
All in their best,
Languidly leaning
In purple gauze dressed:—
All are assembled
This sweet Sabbath-day
To hear what the priest
In his pulpit will say.
Look! white Indian pipes
On the green mosses lie!
Who has been smoking
Profanely so nigh?
Rebuked by the preacher
The mischief is stopped,
But the sinners, in haste,
Have their little pipes dropped.
Let the wind, with the fragrance
Of fern and black birch,
Blow the smell of the smoking
Clean out of our church!
So much for the preacher:
The sermon comes next,—
Shall we tell how he preached it,
And where was his text?
Alas! like too many
Grown-up folks who play

At worship in churches
  Man builded today,—
We heard not the preacher
  Expound or discuss;
But we looked at the people,
  And they looked at us.
We saw all their dresses,
  Their colors and shapes;
The trim of their bonnets,
  The cut of their capes.
We heard the wind-organ,
  The bee, and the bird,
But of Jack-in-the-Pulpit
  We heard not a word!

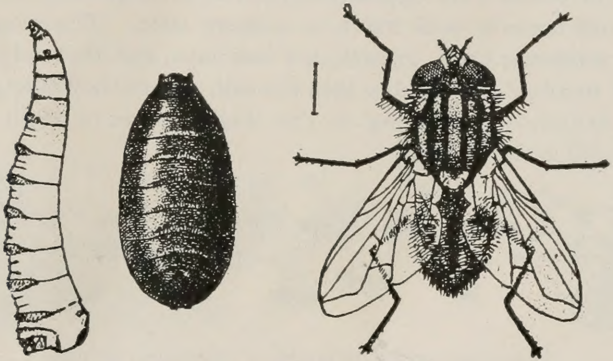
—CLARA SMITH.

Ten Common Household Insects*

HERBERT OSBORN

Perhaps the reader may wonder why we should say ten common insects rather than twelve or eight, and, so far as the number of particularly interesting or important species is concerned, we might very easily extend this list or perhaps reduce it if we were to eliminate certain kinds which are now perhaps less common than in earlier times. However, ten is a convenient number and really includes a considerable portion of our most familiar and troublesome household insects.

Many of our household insects are, like the insects affecting farm crops and domestic animals, immigrants from other countries, and nearly all of the species that will be considered have undoubtedly been brought into this country and certainly into Ohio by the migrations of man and the advance of "civilization". Such insects affect man himself in relation to his health and comfort and also the articles of clothing and food which are necessary for his success.



The Larva (Maggot), pupa and adult House Fly.

It is perhaps unnecessary to arrange any particular order for these pests, and the order as it appears must not be considered as representative either that of relative importance or the most abundant and universally distributed kinds. All that are mentioned are practically worldwide in distribution and quite likely to be encountered in every village or farm house.

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*A more complete discussion may be found in Bulletin No. 47896, New Series, Bureau of Entomology, by Howard and Marlatt, and in "Insect Pests of the Household", Bulletin No. 253, Ohio Agricultural Experiment Station, by R. D. Whitmarsh.

The house fly, a species now frequently called the typhoid fly with reference to its particular menace to health, is a species of world-wide distribution and one which has been recognized from earliest times. We have biblical evidence that they troubled the Egyptians in the days of Pharaoh. Until very recently they were looked upon simply as an annoyance rather than as a serious menace to health. Within the last few years their relation to typhoid, dysentery, tuberculosis, and other human diseases has been so fully established that a very general attempt is being made toward their control.

While generally known, it should be stated that there are several kinds of flies which may be mistaken for the real house fly, but this species may be distinguished by the expanded tip of the proboscis which is fitted for lapping up liquids, not for puncturing the skin for the sucking of blood. Its eggs are deposited in refuse material, particularly stable manure, and hatch in a short time. The maggots feed rapidly, attaining their growth in a few days, and then migrate from the food material, preferably into the soil, where they change to dark brown chrysalids, remaining in this stage for six or eight days and then issuing as adult flies.

House flies carrying the bacteria of tuberculosis to foods.

The relation of flies to diseases is based upon the fact that they feed very indiscriminately and during the time of egg-laying, pass frequently from decaying organic matter, refuse, etc., to food materials in preparation or upon dining-room tables, in this way distributing the germs of disease in the most convenient places for their transfer to persons. This transfer may be either upon the feet or parts of the fly or through its alimentary canal, and the contamination from it may be very readily transferred to milk and other materials which are not subsequently cooked before being eaten. It is probably unnecessary to elaborate upon this point, as it has been very largely discussed in magazines and newspapers, and every one should be familiar with the main facts and recognize the menace to health which is involved. It is perhaps less appreciated that it is possible to fairly reduce the numbers of flies and to eliminate to a large extent the danger of diseases as well as the annoyance from their presence.

The use of screens to keep flies out of houses only lessens the annoyance without wholly removing the danger, and a much better plan is to prevent the breeding of flies and dispense with the necessity of screens, since there is the attendant danger of at least some of the flies obtaining access to food in spite of the most careful attention to screens.

The trapping of flies by means of baits, poison solutions, fly traps, sticky fly-paper, and other methods may be of considerable service where flies are abundant and should, of course, be utilized to the greatest possible extent where more fundamental methods are impracticable or insufficient. Of these various methods, the use of a solution of water, milk, and formalin, a tablespoonful of the latter with a half-pint each of the former, is very effective and is practically harmless to other animals. Tanglefoot has the advantage of capturing the insects and preventing their dropping into food material after having been poisoned.

For the prevention of the breeding of flies, which is really the fundamental question, it is necessary to know certainly what kinds of materials are their natural breeding places. Evidence upon this point shows clearly that flies select or prefer articles which are in some stage of fermentation, but they are particularly attracted to horse manure and the fermenting straw that is associated with it; when this is lacking, they will breed in other decaying matter, garbage, etc., if it is available. Strict attention to the disposition of such materials is therefore a basis for control. All such materials should be disposed of promptly. This disposal is provided for in towns and cities with any method of sanitation with respect to garbage and litter, but on farms and in small towns where there is no general sewage system or direct control, personal attention to such disposition is necessary. The most effective disposition of stable litter, providing against fly breeding and retaining the fertilizing value, is to spread it at once upon the fields, where it may promptly dry out. If it is necessary that it accumulate for any length of time, it should be stored in tight receptacles and either treated with substances that will destroy the flies or should be covered or screened so as to exclude them.

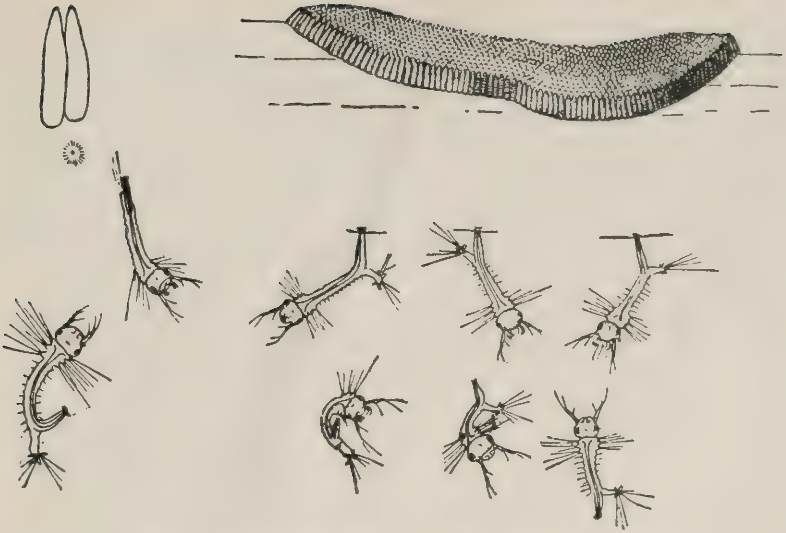
The birthplace of house flies.

Carrying filth into milk.

Mosquito

While we speak of mosquitoes in a general way, without discriminating between the different kinds, we should perhaps recognize that there is one species which is the more common about dwellings and which in some cases is referred to as the house mosquito. These pests commonly breed in rain barrels, in small amounts of water that may remain in broken crockery, in small pools, in depressions in the eaves, or in the catch basins at the street corners. It is supposed that they do not travel far, and attention to the surroundings of any particular dwelling will go far toward relieving the inmates from annoyance. Mosquitoes develop only in water, the eggs being laid on the surface in large masses; the young as soon as hatched pass into water, and in this stage they are known as ''wrigglers''. This stage is passed in a few days and, after a short period in the pupa stage, adult winged forms appear. The females are the ones which suck blood and may be distinguished from the males by the slender antennae or feelers, the males being provided with large, feathery antennae and a somewhat more slender body. Screening will exclude mosquitoes but the better practise is to avoid their development by looking after the drainage of small pools and the disposition of tin cans or other articles that may retain sufficient water for them to breed in. If water tanks, cisterns, or other reservoirs are neccessary, these should be screened or covered in such a manner as to prevent the entrance of mosquitoes.

Where mosquitoes breed.


Eggs and young "wigglers" of mosquito. Culex pipiens.

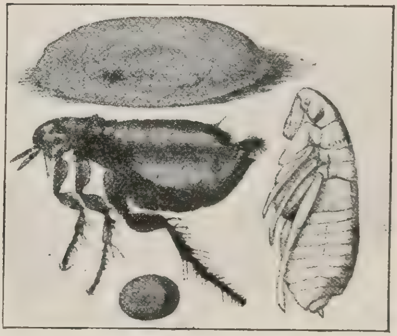
Pools or small bodies of water which cannot be otherwise controlled and which are too small for the keeping of fishes may be treated with a film of kerosene to prevent any mosquito breeding.

This mosquito is not considered in the transmission of malaria, but another species* is a menace to health because of the well-established fact that it serves as the intermediate host and carrier of this disease.

The irritation from mosquito bites is often intense and for some persons of unusual susceptibility to the poison causes much suffering. It may be relieved by the use of diluted ammonia, the ordinary "household ammonia" answering well. It is also claimed that glycerin gives prompt relief.

Flea

The species of flea most abundant in Ohio appears to be the one affecting dogs and cats†, but there are other species, especially the one termed the house flea, which is an abundant pest in the old world but which seems never to have become so plentiful here. They are especially troublesome on account of their bites. The eggs are laid in the


Dog or cat flea egg.
Cocoon pupa and adult.

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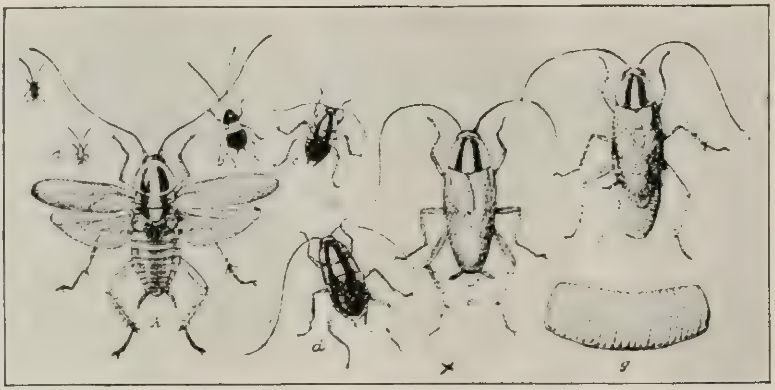
*Culex pipiens
†Ctenocephalus canis

hair of dogs or cats, but are very loosely attached so that they are easily shaken out and distributed in places where these animals rest.

The eggs hatch a short time after deposition and the larvae feed upon the litter of the places where they are hatched. They grow quite rapidly and change to the chrysalis stage in about two weeks, at which time they spin a delicate silken cocoon, within which the pupa stage is passed. This stage lasts one or two weeks and the adults live for a considerable length of time, the winter probably being passed in this condition. They are not constant parasites on the host animals but attach themselves occasionally for the purpose of getting blood. At other times they secrete themselves in cracks or crevices or around furniture. They are most likely to be abundant in the lower rooms or basements of buildings where there is some degree of moisture. As several generations may be produced during the summer season, fleas may become extremely abundant and prove a very serious annoyance with the possibility of serving as carriers for disease.



Croton Bug.
a—Young larva. f—Adult with egg pod. g—Egg pod. h—Adult.

The particular flea mentioned here has not been definitely associated with any particular diseases, but another species common upon rats is recognized as the carrier of bubonic plague and it is thought possible that these insects may serve as a carrier for other diseases, possibly leprosy, so that it is important that they should be exterminated whenever possible.

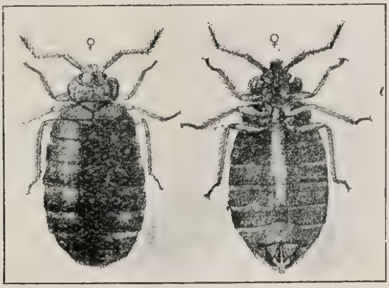
The elimination of fleas is much more difficult if dogs or cats are kept in the house, but in case this is done, frequent shaking or cleaning of the rugs or other articles and a cleaning out of the quarters occupied by these animals will serve to prevent the development of eggs and larvae. Dusting pyrethrum through the hair or fur of the animals will stupify the adult insects so that they may be dislodged and killed.

Cockroach

The term cockroach is applied to several kinds of insects, but we will take the common and often abundant little Croton bug or German cockroach* as the basis for this note. These are flat-bodied insects, capable of secreting themselves in very narrow quarters and if numerous they have the tendency to get into all sorts of food materials, making themselves a very great nuisance. They feed upon all sorts of pantry supplies, particularly such things as contain flour. Their annoyance comes not only from the fact that they eat materials but also from the fact that they get into food supplies and it is sometimes difficult to keep them out of bread or other articles prepared for the table.

In addition to this common species, we have a large black one with short wings, the Oriental cockroach; and a still larger, long-winged form, the American cockroach; but neither of these is so commonly found or is so generally distributed in this state as the Croton bug. The annoyance from this pest can be much reduced if pains are taken that no materials which will furnish them food are left standing in pantries or storerooms in such a manner that the insects can have access to them. Tight flour-bins, bread-boxes, and other receptacles which absolutely exclude the roaches, will serve very largely to prevent their occurrence in any particular dwelling. In excessively-infested houses, bakeries, or storerooms for food supplies, a thorough fumigation with hydrocyanic acid gas is the most successful plan of treatment, but premises must be completely vacated for a number of hours and the fumigation should be done by someone thoroughly familiar with the use of this deadly agent.

Bedbug



Bedbug

This pest, which is so universally distributed and so difficult to exterminate, scarcely needs any special description, but to those not acquainted with it, it may be described as a dark, reddish-brown insect, very much flattened, with piercing mouthparts. It avoids light and secretes itself in cracks of furniture or wall paper and attacks its victims during the night time for the purpose of sucking blood. Its eggs are white, elongate-oval in shape, and can be found attached along the cracks of bedsteads or next to the casings of the walls. The young are similar to the adults, but of a lighter color, and differ somewhat in the proportions of the body.

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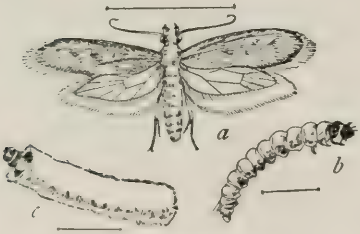
*Blatella germanica.

These insects are carried from place to place mainly on clothing, and it is sometimes extremely difficult to prevent their introduction into houses, but constant attention to their exclusion or prompt treatment in case they are discovered in a dwelling will serve to prevent annoyance from them. Several methods are used for their destruction—one is the spraying of furniture where they are secreted with corrosive sublimate; another is the use of kerosene or hot water, either of which is effective if reaching the eggs or the insects themselves. Gasoline is effective but should be used with caution on account of its inflammability.

Clothes Moth

While perhaps the most common species of clothes moth in this state is the casemaking clothes moth*, there are other species which may occasionally be found, one called the tapestry moth and another the southern clothes moth. They are similar in habits but the species especially treated here is the only one that makes a distinct case within which the larva lives. The adult insects are moths which are sometimes seen flying about in the rooms, especially in the evening. These are very delicate little insects covered with fine scales which appear as dust and with delicate fringe to the wings. In this stage they are entirely harmless except that they seek out and deposit their eggs in woolen clothing, carpets, or furs. The larvae or caterpillars, which are the destructive stage, feed upon the fibers of the fabrics in which they are secreted and construct the delicate cases within which they live and which can be drawn about with the insect as it moves from one place to another. The damage comes from cutting the threads in woven goods or the fur from the furs. This is used as food material but a very much larger amount of fabric is destroyed than is involved in the part actually eaten. The moths usually are most plentiful during July and August; more damage results from the larvae in the latter part of the summer. The chrysalids from these larvae probably live through the winter and give rise to moths in the following summer, so that there is a single generation each year.



Common clothes moth.
Larva, pupa and moth.

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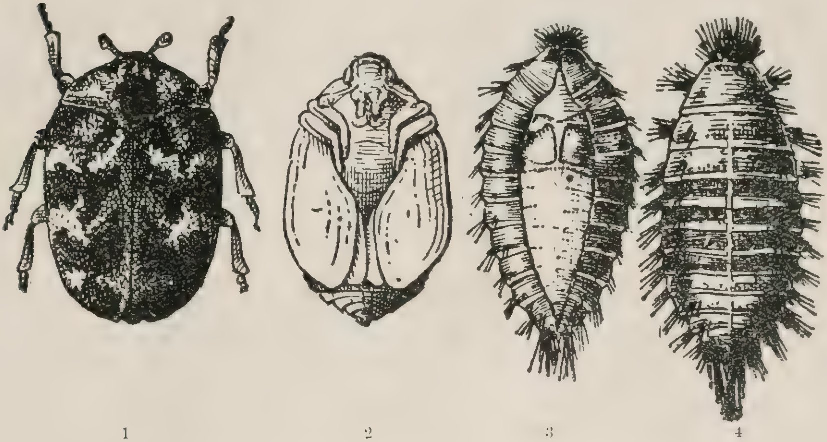
*Tinea pellionella.

For clothes that are to be unused during the summer, and especially furs, the most available method of preventing injury is to store in moth-proof cases after the articles have been thoroly shaken in the sunlight. The tight moth-proof paper cases now on the market are quite serviceable for this purpose. For carpets, it is perhaps most satisfactory to discard the old full-sized carpets nailed to the floor and depend upon rugs, which can be frequently aired and shaken out of doors.

Carpet Beetle

This insect, sometimes called the ''buffalo moth'' because its work is somewhat like that of the clothes moth, is a small black, red-marked beetle, the larvae of which is short, black, and covered with stiff, short bristles. The damage is done in the larval stage and may occur during fall and winter or at various times in the year. They infest furs and woolen goods of various kinds, particularly where these are in storage or not frequently disturbed. As with the clothes moth, one can secure quite perfect freedom from the carpet beetle by carefully shaking and airing the articles and enclosing them in tight cases for the summer season. Where there is a very serious infestation of all parts of the house, the most effective plan may be to fumigate with hydrocyanic acid gas, but this involves vacating the house for a short time, closing all cracks and openings very tightly, and generating the gas with a combination of cyanide of potassium, sulphur, and water, a process which requires careful attention on account of the very poisonous nature of the fumes. It is best accomplished by the employment of an expert in this particular work.



Buffalo Carpet Beetle
1—Adult. 2—Pupa. 3—Pupa in larval skin. 4—Larva.

House Ant

House ants are little red ants[*] which are sometimes extremely annoying by running over all sorts of food articles, getting into food receptacles, and feeding upon sugar and other foods. The one mentioned here is perhaps the most frequent, although there are several species which may occur indoors. This one is quite distinctly an inhabitant of houses, and was very probably introduced into this country from the old world at some time in the early history of the settlement of the country. It is quite small, less than 1/16-inch long, with a very slender body and distinctly red color. Its nest is usually constructed in the walls of the house or in cavities which are in out-of-the-way places so that they are reached with difficulty, while the forays upon food materials are made by the worker ants, passing sometimes in continuous streams between the nest and the food supply. If the nest can be located, a drenching of hot water or, if it is in a suitable cavity, a treatment of bisulphide of carbon may serve to destroy the colony. Where this is impossible, a trap can be used by baiting a sponge with syrup or sugar water to which the ants will go in large numbers, and this in turn can be dropped into hot water, a method which can be used in storerooms and pantries. The use of tight receptacles, which prevent the ants from getting to the food materials, is a good plan to prevent annoyance from them. Persian insect powder or carbolic acid as an obstruction in the line of their travel will assist in keeping them out.

Indian Meal Moth[†]

There is another common pest of food substances, which occurs in somewhat the same materials as the saw-toothed beetle. It is quite different, however, the adult being a small moth somewhat similar in appearance to the clothes moth altho larger. The eggs are laid in various food substances, breakfast foods, seeds, dried fruits, etc., and the larva, which is a small, slender caterpillar, feeds in this material and usually spins a web as it works so that the food is made quite undesirable. In Ohio there are usually two broods each year, but with warmth, the number of generations may be increased to four or five. As with the following species, it is possible to sift out the insects from the flour or meal, but their presence is undesirable and infested packages should be returned to the grocer to be changed for fresh material. The prevention of their entrance into the packages of breakfast foods, etc., should be attended to at the mills or packing houses.

Direct treatment of these insects in stored products may be adopted where fumigation is possible but cannot be done as advantageously as in the mills or warehouses where cereals are prepared.

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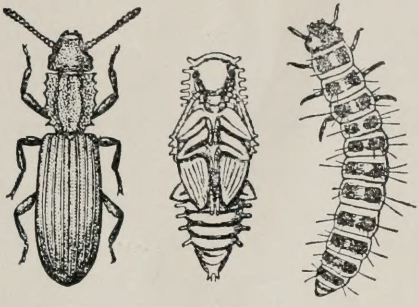
[*] Monomorium pharaonis.

[†] Plodia interpunctella.

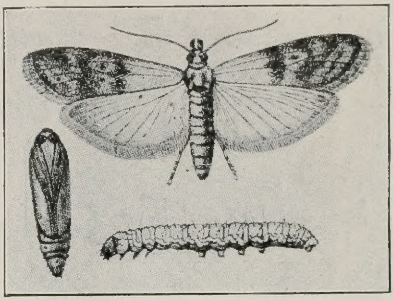
Saw-Toothed Beetle*

Probably one of the most frequently noticed pests of stored cereal foods, especially those in packages, is this little dark, red-brown beetle with the edges of the prothorax strongly toothed. It is found in a great variety of food substances, including breakfast foods, yeast cakes, nuts, and dried fruits.

All stages of the insect may occur in these substances, the larva being a slender, somewhat flattened creature, the pupa being about the shape of the adult. The adult tunnels through cases or migrates from place to place depositing its eggs adjacent to the materials in which the larvae will grow. There are probably several generations each year, especially in the food materials that are in warm situations. They should not be present in freshly-packed cereals but owing to the fact that they become very numerous in mills it is quite probable that eggs may be included in the package and the larvae developed later.



Saw-toothed grain beetle.
1—Adult. 2—pupa. 3—larva.



Indian Meal Moth; larva, pupa and moth.

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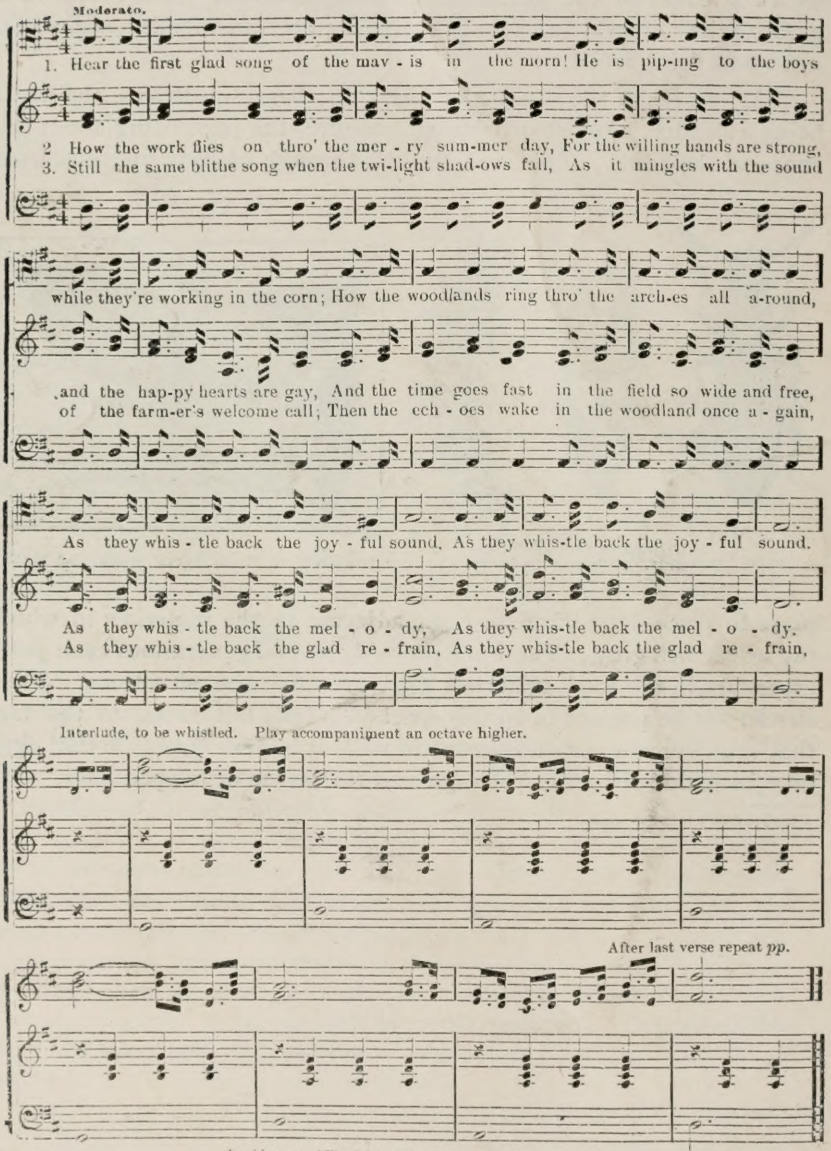
*Sylvanus surinamensis.

THE MERRY FARMER BOY.

Dr. GEO. F. ROOT.


Moderato.
1. Hear the first glad song of the mav - is in the morn! He is pip-ing to the boys while they're working in the corn; How the woodlands ring thro' the arch-es all a-round, As they whis - tle back the joy - ful sound. As they whis-tle back the joy - ful sound.
2 How the work flies on thro' the mer - ry sum-mer day, For the willing hands are strong, and the hap-py hearts are gay, And the time goes fast in the field so wide and free, As they whis - tle back the mel - o - dy, As they whis-tle back the mel - o - dy.
3. Still the same blithe song when the twi-light shad-ows fall, As it mingles with the sound of the farm-er's welcome call; Then the ech - oes wake in the woodland once a - gain, As they whis - tle back the glad re - frain, As they whis-tle back the glad re - frain,
pp

Interlude, to be whistled. Play accompaniment an octave higher.

After last verse repeat *pp.*

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